

WAFER SCALE INTEGRATED CIRCUIT

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Abstract of JP4025046

PURPOSE: To radically shorten a delay in signal transmission between distant blocks within a wafer scale integrated circuit by installing a plurality of microwave, millimeter wave sending/receiving modules with antennas and a plurality of modulators/demodulators on a large diameter semiconductor wafer. **CONSTITUTION:** On a PH16" (about 15cm) silicon wafer 1, forty four 1.5cmX1.5cm square unit function blocks 2 are installed, and at 4 corners on the silicon wafer 1 and at the center thereon a total of 5 millimeter wave sending/receiving modules 3 with antennas are installed. This module 3 is installed on a semi-insulating GaAs chip 12 having a ground metallic plate 20 at the back thereof and has one modulator/demodulator 6, high power output amplifier 5, low noise amplifier 4, sending/receiving changeover switch 7, and microstrip dipole antenna 8. The distant blocks thus installed in a wafer scale integrated circuit are connected by means of radio communication, thereby eliminating a signal delay by charging/discharging of the circuit and by dielectrics.

